REVISED DRAFT TERMS OF REFERENCE

FOR THE ST. JOHN'S OUTER RING ROAD AND TRANSMISSION LINE

ENVIRONMENTAL IMPACT STATEMENT

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and

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TABLE OF CONTENTS

		PAGE
1.0	INTRODUCTION	1
2.0	EXECUTIVE SUMMARY	2
3.0	DESCRIPTION OF THE PROPOSED PROJECT	2
3.1	PROJECT RATIONALE	2
3.2	PROJECT DESCRIPTION	3
3.2.1	Design Specifications	4
3.2.2	Preconstruction	6
3.2.3	Construction	7
3.2.4	Operation and Maintenance	7
3.3	ALTERNATIVES	8
4.0	EXISTING ENVIRONMENT	8
4.1	CLIMATE	9
4.2	TERRAIN FEATURES	10
4.3	VEGETATION	10
4.4	WILDLIFE	10
4.5	AQUATIC RESOURCES	10
4.6	LAND-USE AND CAPABILITIES	11
4.6.1	Historic Resources	12
4.6.2	Forestry	12
4.6.3	Aggregate Resources and Quarries	12
4.6.4	Recreation	13
4.6.5	Visual Resources	13
4.6.6	Land Status and Designation	14
4.6.7	Agriculture	14
4.7	NOISE	14
4.8	ELECTROMAGNETIC EFFECTS	14
4.9	ENVIRONMENTAL HAZARDS	15

TABLE OF CONTENTS (cont'd)

		PAGE
5.0	ORIGINAL RESEARCH	15
6.0	ENVIRONMENTAL IMPACTS	16
6.1	AESTHETICS	17
6.2	TERRAIN DISTURBANCE	17
6.3	IMPACTS ON AGGREGATE RESOURCES AND QUARRIES	17
6.4	IMPACTS ON AQUATIC RESOURCES	18
6.5	IMPACTS ON VEGETATION	19
6.6	IMPACTS ON WILDLIFE	19
6.7	HUMAN IMPACTS	19
6.8	NOISE	19
6.9	ELECTROMAGNETIC EFFECTS	20
7.0	PUBLIC INVOLVEMENT	20
8.0	MITIGATIVE MEASURES	20
9.0	REHABILITATION	22
10.0	ENVIRONMENTAL MONITORING	22
11.0	ENVIRONMENTAL PROTECTION SPECIFICATIONS	22
12.0	REFERENCE CITED	23
13.0	PERSONNEL	23

APPENDIX A
DRAFT TERMS OF REFERENCE
FOR A WATER QUALITY
MONITORING STUDY

APPENDIX B
DRAFT TERMS OF REFERENCE
FOR AN AQUATIC HABITAT ASSESSMENT

APPENDIX C
DRAFT TERMS OF REFERENCE
FOR AN HISTORIC RESOURCES
OVERVIEW ASSESSMENT

1.0 INTRODUCTION

The Department of Transportation (DOT), Government of Newfoundland and Labrador, and Newfoundland and Labrador Hydro (Hydro) have proposed as co-proponents, to construct the St. John's Outer Ring Road and Transmission Line (Figure 1). This development is comprised of a divided highway and 230 kV transmission line sharing a common right-of-way between the Trans-Canada Highway near Hydro's Hardwoods Terminal Station and Logy Bay Road. The transmission line will terminate at a proposed east end terminal station located in the vicinity of the intersection of the Outer Ring Road and Logy Bay Road. The Outer Ring Road will be reduced to an undivided, two lane roadway between Logy Bay Road and The Boulevard with a possible connection to The Boulevard.

Upon review of their registration under the Environment Assessment Act, 1981, the Minister of Environment, Government of Newfoundland and Labrador, required that DOT and Hydro prepare an Environmental Impact Statement (EIS) for the proposed St. John's Outer Ring Road and Transmission Line. The proponents have therefore been requested to prepare draft terms of reference for the EIS in accordance with guidelines issued by the Department of Environment. The EIS will provide sufficient information

on the proposed project and the existing environment to assess the environmental acceptability of the project. Alternatives will be discussed. The potential impacts of the project on the existing environment will be identified and proposed mitigative measures outlined. Residual impacts and environmental monitoring will also be discussed. The following sections comprise the terms of reference for the EIS.

2.0 EXECUTIVE SUMMARY

The executive summary will clearly state the conclusions of the EIS focusing specifically on the areas of concern. It will also briefly describe the proposed project, alternatives, the predicted environmental impacts, the mitigative measures to be implemented, the monitoring and rehabilitation programs, and the significance of any residual effects.

3.0 DESCRIPTION OF THE PROPOSED PROJECT

The EIS will identify the proponents and provide a detailed description of the proposed St. John's Outer Ring Road and Transmission Line. The following sections describe the information which will be included in the EIS.

3.1 PROJECT RATIONALE

The purpose and need for the Outer Ring Road and Transmission Line will be discussed in terms of present and

projected demands on the existing transportation and energy supply system.

As an aid in defining the scope of the EIS, the DOT will conduct a traffic study to determine the existence of any alternatives to the proposed route which are viable from a technical transportation point of view. The study will involve a detailed documentation and analysis of existing information.

As per section 13(3)(b) of The Environmental Assessment Act (1980), the proponents will provide a statement of the rationale for:

(i) the undertaking;

(ii) the alternative methods of carrying out the undertaking; and

(iii) the alternatives to the undertaking.

In addition, the history of this proposed development will be described.

3.2 PROJECT DESCRIPTION

The location and general layout of the proposed highway and transmission line will be illustrated on 1:12,500 scale

aerial photo mosaics or topographic maps with appropriate modifications, where necessary, to reflect changes in the area. The location of the pits, quarries, auxilliary workings, and associated manufacturing adjacent to the right-of-way will be identified. Centre line profile drawings and detailed engineering drawings at scales of 1:1000 or 1:2000 will be available for the proposed highway where the route negotiates steep terrain, side hills, approaches to streams and other important sites.

Preliminary right-of-way cross sections and typical structure drawings for the transmission line will be presented. Detailed plan and profile drawings will not be available until one year prior to construction when appropriate improved technology can be incorporated into the final design. These detailed drawings will be submitted to the Minister of Environment at least one year prior to construction.

3.2.1 Design Specifications

The physical layout and design specifications of the proposed highway and transmission line will be discussed in detail, and will include all of the cross-sectional elements of the road such as clearing widths, cut slopes, fill slopes, road surface widths and drainage ditches. The length of any cuts, fills and embankments, highway

gradients and degree of curvature will be stated. In addition, the size and location of major highway overpasses, bridges and culverts, approaches to streams, pits, quarries and other workings will be described in detail.

The proponents will ensure that environmental factors will be considered at the design stage of the project.

The preferred route of the 30 m wide transmission line right-of-way lies generally within the 90 m right-of-way of the proposed Outer Ring Road between the Hardwoods Terminal Station and the proposed east end terminal station near the intersection of the Outer Ring Road and Logy Bay Road. The preliminary alignment of the transmission line within the proposed highway corridor will be identified. The following design specifications of the transmission line will also be described and discussed:

(i) the design and operating voltage of the transmission line;

(ii) a description of the size and type of conductors proposed;

(iii) a description of the proposed structures, including the range of typical height and spacing; and

(iv) a description of the changes to existing facilities required to accommodate the proposed facilities.

3.2.2 Preconstruction

The proponents will describe the nature and extent of highway surveys, proposed clearing width, merchantable timber salvage and debris disposal, stump and topsoil cleaning, stock piling and preservation of topsoil and organic materials for use in rehabilitation. The location and design of any temporary or permanent stream crossings will be discussed. The assemblage of land for the proposed highway and the timing of the preconstruction activities will also be addressed.

If the transmission line is constructed within the highway right-of-way, no clearing or instream activities will be required. If alternate routes are used, then clearing and stream crossings will be necessary for those portions which deviate from the highway right-of-way, and these activities will be described.

The proponents will prepare an environmental protection plan (see section 8.0) which will provide educational guidelines for use by project managers and contractor's employees on environmentally acceptable construction practices, and the legislation and permit requirements for the undertaking. The environmental protection plan will be a field useable document.

3.2.3 Construction

The timing and methods of construction for the St. John's Outer Ring Road and Transmission Line will be discussed in this section. The proposed schedule of construction and manpower utilization will be noted.

The types and sources of construction material and the locations of any borrow pits or quarries will be described. The methods of operation, clearing, stripping, removal and preservation of topsoil and other organic material, phases of development and details on rehabilitation of quarried and other disturbed areas will be described. The use and storage of hazardous materials such as fuel or explosives will be discussed. The proponents will describe any proposed alteration of streamflow or instream activity along the right-of-way.

3.2.4 Operation and Maintenance

In this section the proponents will discuss the following points as they apply to the two linear developments:

(i) normal maintenance procedures;

(ii) vegetation control methods;

(iii) ice protection chemicals;

(iv) projected traffic flow volumes; and

(v) operation and maintenance of any structure which permanently alters any natural process (e.g. streamflow).

3.3 ALTERNATIVES

DOT will describe in detail any alternate routes to the proposed route which are found to be viable in the traffic study (section 3.1). Additional alternatives that are identified during the public information program will be documented and discussed.

Hydro will describe the four alternate routes which have been identified for the transmission line. Engineering, socio-economic, ecological and biophysical factors of each alternative will be discussed and compared to aid in scoping and bounding the undertaking.

4.0 EXISTING ENVIRONMENT

The EIS will provide baseline information on the existing environment within the boundaries of the study area and within the right-of-ways of the alternate routes.

As a result of the wide scope of this proposed project, it is necessary to define several different geographical areas on which the study will focus. The study area will consist of Pippy Park and a one kilometer wide corridor centered on the proposed highway and transmission line right-of-way outside the Park boundaries. Quidi Vidi Lake and Village will be included in the study area if the traffic study shows that The Boulevard needs upgrading. The study corridor will consist only of a one kilometre wide corridor

centered on the proposed highway and transmission line right-of-way. The right of way for the highway and transmission line is defined as a 90 m wide corridor. However, the right-of-ways for the Hydro alternates outside the Park are defined as corridors 40 m in width, and any highway alternate right-of-way is 90 m in width.

In the case of water resources (see sections 4.5 and 6.4), the study corridor will extend to include a downstream zone along all watercourses and their assocaited riparian zones. In the case of visual resources (section 4.6.5) and aesthetics (section 6.1), the study area will extend to include all areas from which the proposed highway and transmission line can be viewed. In the case of noise (section 4.7) the proponents will expand the study corridor to include a two kilometer wide corridor centered on the proposed highway and transmission line right-of-way.

4.1 CLIMATE

Existing climate data for St. John's will be obtained from the Atmospheric Environment Service, Environment Canada. An emphasis will be placed on those meteorological phenomena which have the greatest potential effect on the project (e.g. precipitation, fog, icing and winds).

4.2 TERRAIN FEATURES

The bedrock geology, surficial geology, landforms and soil types of the study corridor and alternate right-of-ways will be described and mapped using existing information at the scale presently available.

4.3 VEGETATION

The terrestrial and aquatic vegetation types, including rare orchids, within the study corridor and alternate right-of-ways will be described using existing information, original inventories as required, and interviews with appropriate authorities.

4.4 WILDLIFE

Wildlife and wildlife habitats within the study corridor and alternative right-of-ways will be described and discussed. The discussion will be based on existing information, original inventories as required and interviews with appropriate authorities.

4.5 AQUATIC RESOURCES

The physical and chemical characteristics of the water resources within the extended study corridor (section 4.0) and alternate right-of-ways will be described.

A water quality monitoring study will be conducted by DOT in the extended study corridor. The terms of reference for this work is included in Appendix A.

The aquatic resources within the study corridor will also be described, including aquatic habitat. The draft terms of reference for the aquatic habitat study are found in Appendix B.

The groundwater resources within the study corridor will be described using existing information. The proponents will identify the number and location of private water and sewer systems which could potentially be affected by the proposed development within the study corridor.

The proponents will investigate the aquatic resources of the alternate routes using existing information only. However, if as a result of this assessment an alternative route is selected, construction will be carried out in a manner which assumes that all streams contain productive fish habitat.

4.6 LAND-USE AND CAPABILITIES

Present and projected land-use patterns, and land-use capabilities will be assessed within the study area and

along alternative right-of-ways using existing information. The following sections describe the particular land-use concerns which will be considered.

4.6.1 Historic Resources

The proponents commit to carrying out an historic resources overview assessment of the proposed route prior to construction. The draft terms of reference for this study are located in Appendix C. If, as a result of this assessment, any alternatives are used, an historic resources overview assessment will be conducted well in advance of construction to allow sufficient time for the appropriate mitigation, if required.

4.6.2 Forestry

The present forest resources and their utilization will be discussed and the land capability for forestry will be investigated in the study corridor and along alternative right-of-ways using existing information.

4.6.3 Aggregate Resources and Quarries

The aggregate resources within the Metropolitan St. John's area and along alternative right-of-ways will be described

using existing information. The two existing quarries and related operations, City Sand and Gravel Ltd., City Paving (Soper's Pit) and Lundrigan's Concrete East, adjacent to the proposed right-of-way will be described with special regard to the availability of alternate sources of material. Present quarrying techniques and the area of influence of each operation will also be described.

4.6.4 Recreation

The proponents will describe the present and projected recreational land-use and the capability for recreation in the study area and in alternative right-of-ways. Special emphasis will be placed on Pippy Park. Present and future demands by local residents and visitors will be assessed.

4.6.5 Visual Resources

The distribution and quality of the visual elements of the natural landscape will be described within the boundaries of the study area and along alternative right-of-ways.

The proponents will provide perspective drawings and/or photographs with overlain details depicting the proposed highway and transmission line as it would appear from a reasonable number of key vistas within the extended study area (section 4.0). Special emphasis will be placed on Pippy Park.

4.6.6 Land Status and Designation

The proponents will provide a map or aerial photo mosaic at an appropriate scale showing the present status and designation of land in the study area and alternative right-of-ways and any changes that would result from the proposed development.

4.6.7 AGRICULTURE

The proponents will discuss the existing and potential agriculture base within the study corridor and alternate right-of-ways using existing information.

4.7 NOISE

The calculated decibel levels and frequencies of noise in the extended study corridor (section 4.0) and alternative right-of-ways at various distances away from the highway and transmission line will be described. In addition, the temporal distribution of noise and any projected occurrence patterns will be discussed. An emphasis will be placed on those residential and recreational areas close to the proposed development.

4.8 ELECTROMAGNETIC EFFECTS

A description of the potential electromagnetic effects of the transmission line will include a discussion of the

interaction of the line with other facilities such as pipelines, telephone, radio and television transmission facilities, and surface structures. The transmission line will be designed to minimize electromagnetic effects.

4.9 ENVIRONMENTAL HAZARDS

The known and potential occurrences of snow, icing, windstorms, landslides, floods and fires in the study area (including the alternative right-of- ways) will be discussed. A description of the possible effects of the above environmental hazards on the highway and transmission line facilities will be provided.

5.0 ORIGINAL RESEARCH

A commitment has been made in sections 4.5 and 4.6.1 to carry out a water quality monitoring study in the extended study corridor, a fish habitat study in the study corridor and an historic resources survey along the proposed right-of-way. Terms of reference for these component studies are presented in Appendices A, B, and C, respectively.

6.0 ENVIRONMENTAL IMPACTS

The proponents will describe and compare the potential environmental impacts of the St. John's Outer Ring Road and Transmission Line proposed route and their alternatives. The project description has been considered with respect to the existing environment. The expected impacts on those valued components of the environment (both biophysical and socio-economic) will be identified and discussed. The nature of the impact, whether long or short term, and whether it occurs during the construction or operation phase of the project will be discussed.

The proponents will define a context for impact significance and will present criteria reflecting statistical, ecological and social interpretations of the concept. Terms used to describe the significance of impacts will be unambigously defined. The impact predictions will be explicitly stated to:

(i) fulfill the objective of contributing to informed decision-making;

(ii) contain an estimate of the uncertainty involved; and

(iii) be testable through a monitoring program.

The following sections describe the expected impacts.

6.1 AESTHETICS

The proponents will describe the potential impact of the project on aesthetics in the extended study area (section 4.0). The scenic quality, appearance and attractiveness of the right-of-way, and the impact on the aesthetics of the landscape will be considered. Special emphasis will be placed on the impacts on the aesthetics of the Pippy Park portion of the study area.

6.2 TERRAIN DISTURBANCE

The proponents commit to describe the potential impacts of the proposed highway and transmission line on terrain features such as soil and surficial and bedrock geology in the study corridor.

6.3 IMPACTS ON AGGREGATE RESOURCES AND QUARRIES

The proponents will describe the potential impact of the proposed development on the aggregate resources within the St. John's region. Impacts on pits and quarries operations

and related activities adjacent to the proposed right-of-way will be described in terms of loss of land and/or blockage of access to resources. Impacts resulting from the construction of the development on the long term viablitiy of the operation, and on the economics of the operations and associated businesses, that result from changes caused by the proximity of the right-of-way will be described.

6.4 IMPACTS ON AQUATIC RESOURCES

The potential impact of the proposed development on water resources in the extended study corridor (section 4.0) will be discussed.

The potential impact of the proposed development on aquatic resources in the study corridor will be discussed. The potential for siltation, oil spills and other project related pollution and the blockage of fish passage will be considered.

The potential impact of the proposed development on groundwater including water and sewer systems in the study corridor will be discussed.

6.5 IMPACTS ON VEGETATION

The potential impacts of the project on vegetation, including rare orchids, will be assessed in the study corridor. The value of these resources to naturalists within the context of an urban setting will be discussed.

6.6 IMPACTS ON WILDLIFE

The potential impacts of the project on wildlife and wildlife habitat will be assessed within the study corridor. The value of these resources to naturalists within the context of an urban setting will be discussed.

6.7 HUMAN IMPACTS

The potential impact of the proposed highway and transmission line on the population of the study area including all park users will be discussed. This discussion will consider socio-economic, recreational and historic resource impacts. The focus will be on transportation and energy services, economic effects, community well-being, and displacement of recreational opportunities.

6.8 NOISE

The proponents commit to discussing the potential impact of the estimated level of noise from the operation of the highway and transmission line.

6.9 ELECTROMAGNETIC EFFECTS

The potential electromagnetic impacts of the proposed transmission line will be discussed.

7.0 PUBLIC INVOLVEMENT

The proponents will undertake a program of public involvement in order to identify public concerns which should be addressed in the EIS. Public involvement will help identify potential impacts associated with the proposed project and will assist in the evaluation of these impacts.

Contacts will be made with concerned citizens groups, quarry operators (City Sand and Gravel Ltd. and Lundrigan's Concrete East), and community associations. The public involvement program will have three main objectives:

(i) to inform the public of the proposed project;

(ii) to identify the areas of public concern; and

(iii) to respond to the public concerns.

8.0 MITIGATIVE MEASURES

The proponents will discuss the options and measures available to avoid or mitigate the potential negative environmental impacts identified in the EIS. Mitigation incorporated in the design of the project will be included in the discussion.

The proponents are proposing to use a common corridor which will minimize the area of land disturbed as compared to using separate right-of-ways. The proponents recognize that in the park area, minimization of land disturbances may need to be balanced with mitigating other concerns such as aesthetics and noise. The proponents therefore commit to discuss the balancing of mitigation involving these various factors.

The proponents also commit to the preparation of an environmental protection plan prior to construction which will provide a detailed assessment of environmental and resource concerns and mitigative measures along the proposed highway. The environmental protection plan will be a practical document which will help to avoid or minimize negative environmental impacts during the preconstruction and construction phases of the project.

It is proposed that the transmission line will be constructed within the completed highway right-of-way, and as a result, environmental impacts during construction will be minimized. Notwithstanding, the proponents do commit to using environmentally sound construction procedures and to abide by all laws, regulations, guidelines and permits required, and to uphold all commitments for mitigation outlined in the EIS.

9.0 REHABILITATION

A rehabilitation plan for optimum restoration of terrain, wildlife habitat or aquatic habitat disturbed by the proposed development will be included in the proponents environmental protection plans. To facilitate this rehabilitation a detailed description of site preparation, topsoil removal, preservation and redistribution over disturbed areas will be made. In addition, the environmental protection plan will provide educational guidelines for DOT's and Hydro's engineers, project managers, contractors and construction personnel.

10.0 ENVIRONMENTAL MONITORING

In the EIS, the proponents will discuss a detailed environmental monitoring program for the project during the consturction and operational stages of the development. Monitoring studies will be an integral part of the design of impact studies in order that impact predictions can be tested against actual outcomes. This monitoring program will focus on significant impacts.

11.0 ENVIRONMENTAL PROTECTION SPECIFICATIONS

The proponents will include in the EIS proposed Environmental Protection Specifications to be included in tender documents which will bind contractors to carry out environmentally acceptable construction practices.

12.0 REFERENCES CITED

A list of references cited will be contained in the final EIS.

13.0 PERSONNEL

Prior to initiating work on the EIS, the proponents will provide a list of qualified project personnel who will be responsible for the various components of the EIS. This personnel list will include their academic qualifications and relevant work experience.

APPENDIX A

TERMS OF REFERENCE
FOR A WATER QUALITY MONITORING
STUDY

The Department of Transportation shall conduct a water quality monitoring study within the extended study corridor along those watercourses crossed by the proposed highway. The objective of the study is to monitor physical and chemical water quality in all watercourses to be crossed prior to, during and for a period of one year following construction and to detect any changes in water quality.

The study will consist of the following components:

(i) an identification of sampling stations along with a review of existing physical and chemical water quality analysis results.

(ii) consultation with individuals and organizations knowledgeable about the physical and chemical water quality in the extended study corridor.

(iii) a sampling program to include select sites along watercourses in the extended study corridor prior to construction. Where possible, such sites should coincide with sampling sites that have been used in the past.

(iv) a sampling program during construction of those stations established and sampled prior to construction.

(v) a sampling program following construction for a period of one year of those stations that are sampled during construction.

(vi) an Interim report following construction to contain methodologies used, the results of the water quality monitoring study, an analysis and discussion of the results and recommendations on the monitoring program.

(vii) a final report following one year after construction to contain methodologies used, the results of the water quality monitoring study, an analysis and discussion of the results and recommendations on the monitoring program.

APPENDIX B

TERMS OF REFERENCE

FOR AN AQUATIC HABITAT ASSESSMENT

The Department of Transportation shall conduct an Aquatic Habitat Assessment along those streams crossed by the proposed highway within the study corridor. The objective of the study is to survey, map and evaluate freshwater habitat which may be adversely affected by the project. The study will have a direct input into the environmental protection plan, which will enable the proponent to avoid negative impacts on sensitive fisheries habitat by the implementation of the applicable mitigative measures. This study will be completed before the initiation of project construction, and will be included in the EIS.

The study will consist of four main components:

(i) a literature search on the aquatic resources (both physical and biological) of the study corridor;

(ii) consultation with individuals and organizations knowledgeable about the aquatic resources within the study corridor;

(iii) an aquatic field survey of streams within the study corridor in order to describe and map the substrate and habitat types; and

(iv) a report containing the results of literature review and field work which will include site specific evaluation of fish habitat within the study corridor. The report will recommend the appropriate environmental measures necessary to mitigate the impact of highway construction on sensitive fish habitat.

APPENDIX C

TERMS OF REFERENCE
FOR AN HISTORIC RESOURCES
OVERVIEW ASSESSMENT

The proponents commit to conducting an Historic Resource Overview Assessment following the guidelines prepared by Historic Resources Division of the Department of Culture, Recreation and Youth. The objective of this study is to identify and assess the historic resources which may be adversely affected by the project and to recommend any necessary mitigative measures. Once the overview report is completed and depending on its findings, a Detailed Impact Assessment will be undertaken if deemed nescessary by the Historic Resources Division. This study will be completed before the initiation of project construction.

The study will consist of four main componenets:

(i) a documentary search consisting of a review of existing literature and other relevant data sources;

(ii) consultation with individuals and organizations knowledgeable about the historic resources within the study corridor;

(iii) a preliminary field reconnaissance consisting of a foot survey of the surveyed centre line of the right-of-way where necessary;

(iv) an overview report which will follow the general format suggested by the Historic Resources Division; and

(v) a Detailed Impact Assessment would follow the format suggested by the Historic Resources Division, if required by the Historic Resources Division.